

(−6.8 mmHg, SD 29.8), total cholesterol (−31.6 mg/dL, SD 46.2) and LDL (−26 mg/dL, SD 44.8) from baseline to post-intervention, although not statistically significant. The majority reported that they would continue to use VW as a resource (76%) and agreed/strongly agreed that the program improved their heart health knowledge (86%) and assisted with adapting healthier lifestyle (100%). Overall, the VW CR program received a rating of 8 (scale 0-10). **DISCUSSION/SIGNIFICANCE OF IMPACT:** VW-based CR program is a feasible, highly acceptable and innovative platform to influence health behaviors and CV risk and can increase accessibility to disadvantaged populations with higher CVD burdens.

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### What percent of unnecessary ED visits for chronic conditions can be reduced by extant telemedicine devices?

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**OBJECTIVES/SPECIFIC AIMS:** This study will elucidate what percent of unnecessary ED visits for chronic conditions can be reduced by extant telemedicine devices, and which telemedicine devices can yield the greatest reduction in unnecessary ED visits for chronic conditions. **METHODS/STUDY POPULATION:** We intend to use the Nationwide Emergency Department Sample (NEDS) to estimate the percent of ED visits, with a chronic condition as the principal diagnosis, where only evaluation and management services were rendered. The NEDS is the largest publicly available, all-payer ED database, providing national estimates of ED visits. The NEDS contains information on patient demographics, principal diagnosis (captured by ICD-9-CM codes and defined as the main reason for bringing the patient to the hospital), and procedure codes using Current Procedural Terminology, Fourth Edition (CPT-4). Patients with a chronic condition will be identified using Chronic Condition Indicator developed by the Agency for Healthcare Research and Quality and, from them, patients who only received “evaluation and management” services will be extracted using the CPT-4 codes 99281–99283 and G0380–G0383. Then using our previously developed database, wherein FDA-approved OTC medical devices were allied to chronic conditions by applying the transitive property of equality between telemedicine devices – measurement and measurement – conditions pairs, we will elucidate what percent of unnecessary ED visits for chronic conditions which can be reduced by extant telemedicine devices. **RESULTS/ANTICIPATED RESULTS:** We anticipate multiple OTC telemedicine devices will be necessary to evaluate and manage common principal conditions. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Telemedicine is seen as a potentially powerful tool for improving healthcare and reducing cost. UnitedHealthcare, the largest US insurance provider, has partnered with Doctors on Demand, the largest players in the telemedicine app space, and other app-based telemedicine services to provide on-demand access to physicians. However, to reach the full potential of telemedicine, and more specifically towards reducing unnecessary ED visits for chronic conditions, telemedicine services need to include capabilities that will allow for the evaluation and management of chronic conditions. This study is a pragmatic first step towards understanding what telemedicine devices would best augment existing telemedicine services to reduce unnecessary ED utilization.

## Education/Mentoring/Professional and Career Development

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### A Systematic Review of Research Competency Assessments for Clinical Researchers

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**OBJECTIVES/SPECIFIC AIMS:** The purpose of this study was to summarize the existing literature on clinical research competencies and determine what competency assessments currently exist. We also wished to assess which competencies should be included in a research competency assessment tool and to evaluate the validity of current competency assessments. We also examined whether these competency assessments can be used for the purposes of formative and summative evaluation. **METHODS/STUDY POPULATION:** Prior to conducting our search of the literature, we first compiled a list of search terms (e.g., clinical, research, training, competencies) that could be used to locate articles. We then entered these search terms, in various combinations, on several relevant databases. We evaluated abstracts of the articles revealed by this search to determine whether they met three criteria. The first criterion was that the subjects of the article must be clinical investigators or clinical investigators in training. Relevant disciplines included medicine, public health, nursing, pharmacy, dentistry, and other related fields. The second criterion was that articles should focus on research-based (as opposed to clinical) skills. The last criterion was that research-based competencies (or related terms like skills, abilities, mastery, knowledge) must be assessed in some way. If the abstract suggested that the article met all three criteria, the full article was retrieved and analyzed in-depth. To identify articles that eluded literature search, we then examined the reference section of these articles and examined articles that cited these articles. When no additional articles could be located, the search for articles stopped. Once a pool of potentially eligible articles was identified, the articles underwent peer review by several researchers experienced with clinical research and competency-based education and assessment. Articles that were unanimously judged to meet the criteria were included in the systematic review. **RESULTS/ANTICIPATED RESULTS:** Approximately 75 articles were selected and reviewed for eligibility. After peer review, we found that only a small fraction of these articles met our criteria for inclusion in the systematic literature review. Our preliminary findings suggest that there are few assessments of clinical research competency and that many of these assessments are poorly validated. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The findings of the present study suggest that the validation methods used thus far are limited and so the validity of many of these assessments is effectively unproven. Future research on assessments of clinical research competency ought to address these limitations by sampling clinical researchers, using more rigorous validation methods, and by confirming hypothesized factor structures in new samples. The use of better-validated instruments may enhance measurement of trainees' knowledge and skill levels for the purposes of formative and summative assessment.